REMARKS

The applicant respectfully requests reconsideration in view of the following remarks. Claims 1-6, 8-17, 19, 20 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 6,562,971 (Frauenkron) in view of US 6,350,874 (Ogawa). The applicant respectfully traverses this rejection.

In order to expedite prosecution, the applicant has enclosed a declaration providing experimental data. The experiments show surprising effects of the subject matter of the present invention over Frauenkron and Ogawa. To overcome the Examiner's objections the following experiments were conducted:

Experiment 1:

Applicant prepared two H-ZSM-5 catalysts, having an SiO2/Al203 molar ratio of 1000 to 1. The catalysts were dried overnight at 120°C and subsequently calcined at temperatures of 500°C for 5 hours. Catalyst 1 (comparative example) was directly used in a process for preparing a triethylenediamine (TEDA) by reaction of ethylenediamine (EDA) and piperazine (PIP) according to claim 11 as presently on file.

Catalyst 2 (according to the invention) was treated with water vapor at 175°C for 24 hours. Subsequently catalyst 2 was used in a process according to claim 11.

The results are shown in table 1 of the declaration.

The treatment according to the invention leads to an increase of the EDA and PIP conversion from 97% (EDA)/49 % (PIP) to 99 % (EDA)/50% (PIP). Moreover the TEDA selectivity increases from 93 % up to 95 %.

This surprising effect could not have been foreseen.

Consequently, the subject matter of the present invention is not obvious in view of Frauenkron.

Experiment 2:

A mixture containing 20 wt.-% silica and 80 wt.-% mordenit (crystalline aluminosilicate) was extruded into shaped bodies of 3 mm size. These shaped bodies were treated in the following manners:

i) 24 hours at 350°C in steam atmosphere.

ii) 4 hours at 750°C in steam atmosphere (according to Ogawa column 7, catalyst preparation example 1).

iii) 5 hours at 500°C (calcination with steam) followed by 24 hours at 350°C in steam atmosphere (according to the present invention).

The cutting hardness of the shaped bodies was subsequently examined. The results are shown in the diagram 1 at page 3 of the declaration.

Treatment with steam alone even for a long period does not give shaped bodies with high cutting hardness (treatment i)). The process according to Ogawa (treatment ii)) produces shaped bodies with an increased cutting hardness compared to treatment i). The shaped bodies obtained according to the present invention (treatment iii)) clearly show the highest cutting hardness. This surprising effect therefore, is achieved by the separation of the calcination and the treatment with steam afterwards. The treatment according to the present invention is not suggested by Ogawa.

Therefore, the subject matter of the present invention is not obvious in view of Ogawa. For the above reasons, this rejection should be withdrawn.

In view of the above amendment, applicant believes the pending application is in condition for allowance.

Applicant believes no fee is due with this response. However, if a fee is due, please charge our Deposit Account No. 03-2775, under Order No. 13156-00177 from which the undersigned is authorized to draw.

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Respectfully submitted,

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Enclosure: Declaration of Experiments 1 and 2